MANTECH Publications

Recent Trends in Electrical Machines and Drives

Volume 3, Issue 2, May- August 2018

Computerized Child Cradle and Monitoring for Little One Care

Tushar Patekar, Pooja Dawale

Department of EXTC

Des's coet Dhamangaon, MH, India

***Corresponding Authors' email id**: patekartushar3029@gmail.com, poojadawale31@gmail.com*

Abstract

This paper affords a design of an automatic baby cradle machine which offers a dependable and green baby tracking system that can play a substantial role in offering higher little one care. this system display parameters such as infant cry, surroundings temperature, moisture situation, and the usage of cloud this facts is accessed by means of parents to initiate the proper manage actions. the system structure consists of sensors for monitoring crucial parameters, dc motor for cradle movement, cloud where records is stored and a valid buzzer all controlled by way of a single arduino mega microcontroller middle.

***Keywords:** Cradle, Information Storage, Microcontroller, Sensors.*

I. INTRODUCTION

In the present scenario wherein both the dad and mom are busy of their expert existence, it has come to be very hard for them to get enough time to attend to their babies. Now and again it isn't less expensive for them to have the funds for a nanny. this result in admitting their infant to crèche throughout their activity timing. it is found that maximum of the instances child stops crying or sleeps whilst they're in cradle. in contemporary lifestyles fashion, it is very tough for parents and nanny to sit down nearby their baby and sooth them on every occasion they cry or sleep. Consequently, we've designed a gadget which would assist the dad and mom within the infant care without physical interest. Automatic cradle is a device that offers an aid to swing the infant cradle automatically.

This system pursuits at most important things in helping parents.

Page 102-108 © MANTECH PUBLICATIONS 2018. All Rights

1) Automatic cradle motion.

2) Tell dad and mom whilst important.

II. LITERATURE REVIEW

Steven bang invented automatic baby rocker having a noise sensor to discover infant cry. Noise sensor includes electric mic with a pre amplifier. Sign from noise sensor is fed to microcontroller that's used to control the dc motor. Few colourful lighting fixtures made from led are used to entertain the baby whilst being rocked.

Yang Hu suggested an algorithm for adjusting the bassinet swaying quantity through the sensor signals. the bassinet is made up of an adaptive swaying tool and other sensors community. at the same time as baby is crying, the sensors network can decide the motive in line with detecting parameters, giving the distinct indicators to manipulate circuit. on the same time, the bassinet starts offevolved to sway barely.

Marie R. Harper designed a crib adapted to be swinged routinely. Once the crib is manually tilted in one course and launched, this permits the inertia to actuate the locking and actuating hands to function below the biasing force of spring in conjunction with the tools. as a result, the spring loaded motor begin to operate and the lever that is connected to crib is oscillated in to and fro motion.

Gim Wong added an electronic tool that can be connected to conventional pivotally set up type crib. Which is actuated via toddler cry voice picked up with the aid of the microphone giving short throw type rocking action to crib.

Chau-Kai-Hsieh added a child cry recognizer which incorporates an amplifier circuit for amplifying a received sound sign. in response to the amplified sound signal, a pulse generator circuit generates a pulse signal having 0 crossings which might be aligned with 0 crossings of the amplified sound signal. the heartbeat sign, in turn, is inputted to a sign reputation circuit. the signal recognition circuit outputs a signal indicating that a child's cry was detected.

Misha Goyal and Dilip Kumar brought a automatic toddler cradle which includes an microphone to stumble on baby cry and to it convert into electric signal, op-amp which used as amplifier for signal conditioning circuit and a microcontroller to get hold of the amplified signal and to convert the amplified sign to virtual sign. Microcontroller controls the drive circuit that starts offevolved a motor and sways

Page 102-108 © MANTECH PUBLICATIONS 2018. All Rights

the infant bassinet in step with the input sign.

Anritha Abenezer and Anupreethi. proposed an automated swinging device having a microphone to come across the child cry and which converts the sound signal to electric indicators which are then amplified with the aid of the amplifier after which sent to top detector where cry peaks detected and further sent to microcontroller. microcontroller controls the alerts to be sent, then the output of that is despatched to drivers which drives the dc motor and makes the cradle to swing in keeping with sound depth.

III. DETAILS EXPERIMENTAL

A. Architecture

Our system is designed to help dad and mom and nurses in little one care. the goals of the machine are:

1) Swinging cradle while infant cries until infant stops crying.

2) Sounds an alarm while mattress receives wet. Three sensing surroundings temperature and alerting mother and father.

3) Tracking all thebaby's statistics thru a thru cloud. Structure of system is as shown in fig. 1.

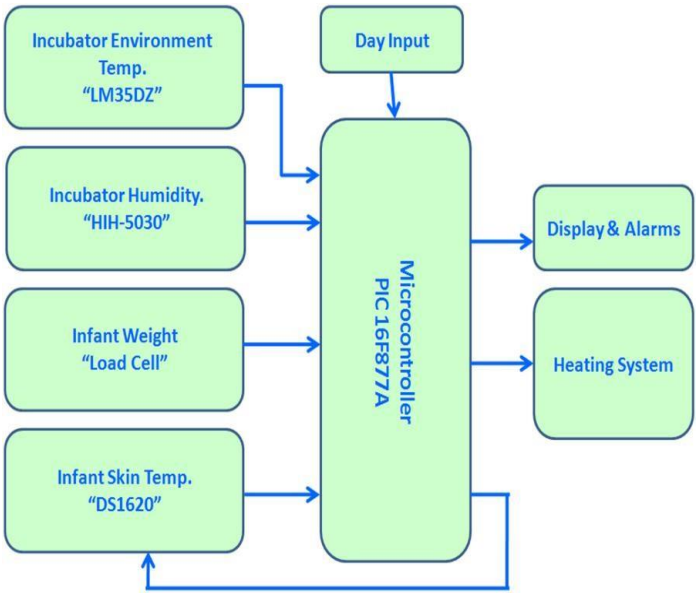


Fig. 1 Block Diagram

Page 102-108 © MANTECH PUBLICATIONS 2018. All Rights

B. Implementation

The architecture of the machine include both hardware and software. Block diagram is proven in determine 1.the code is written in embedded c++ and is burnt into the microcontroller. the primary designing blocks of machine are as follows:-

Wet sensing

To decide the moisture circumstance i.e. urine detection, pairs of copper electrodes are located below the fabric on which infant is snoozing. the sign acquired is given to microcontroller. Whilst urine is present transfer is closed transistor activates. While urine is absent switch is open, transistor turns off. therefore, if mattress receives moist, alarm is buzzed to alert parents.

Environment temperature sensing

Environment temperature sensor operates at 5v and might measure temperatureupto125 c that is enough for the centered environment temperature variety. if the temperature is simply too excessive, mother and father can monitor via webpage and switch on the fan or ac when required.

IV. RESULT AND DISCUSSION

Computerized child cradle gadget

The developed prototype is proven in determine three.

Right here three samples of sound levels of infant cry voice sound degree are taken i.e. 25db, 30db and 20db. least price 21db a few of the 3 sound tiers is set as preset cost. even when the toddler is quiet there may be an enter because of environmental noise ranging 0db-5db that's much less than the preset price 20db and therefore infant cry is not detected.

When child starts crying, an enter because of toddler cry voice and environmental noise is detected in range 25db-35db which is extra than the preset price 21db and therefore child cry is recognized and shown on website and for that reason the cradle may be swinged. That is shown in fig 3 and fig 4. whilst toddler stops crying, cradle may be stopped slowly so that child absolutely goes to sleep.

Moist sensor detects wetness effectively and alarm is initiated. parent 4 indicates message while wetness is detected.

Page 102-108 © MANTECH PUBLICATIONS 2018. All Rights

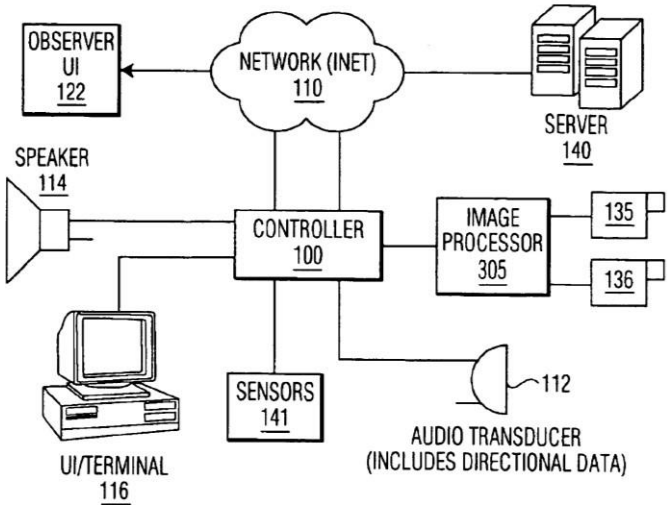


Fig. 2 Operation

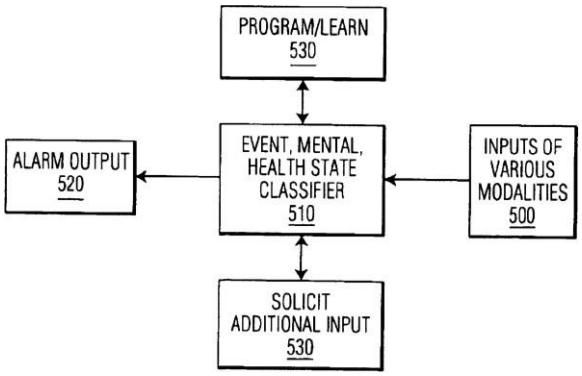
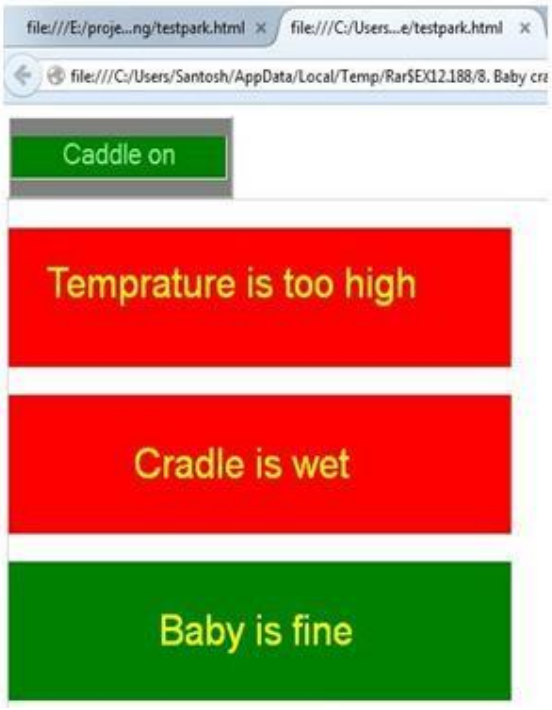


Fig. 3 Flowchart



System working

Page 102-108 © MANTECH PUBLICATIONS 2018. All Rights



System output shows high temperature and wetness detection

CONCLUSION

Toddler monitoring system is an cheaper and simple to use, that could improve the satisfactory of infant-figure verbal exchange. Accordingly, the designed machine could be of top notch use to the working mother and father to take care of them of their busy schedules and hospitals for taking care of infants. Mother and father can screen their child stay through webpage.

REFERENCES

I. Steven Bang; Richard Lam; Natallia Lo Cicero (2011), "Rock Me Baby: The Automatic Baby Rocker" Project for, San Jose State University, Department of Mechanical and Aerospace Engineering, May 17

II. Marie R Harper; La Mirada; Maxine R Blea (1973), "Automatically rocking babycradle", US 3769641, Date of Patent: November, 6..

III. Yang Hu; WeihuaGui; "Adaptive Sway Control for Baby Bassinet Based on Artificial Metabolic Algorithm" School of Information Science and Engineering, Central South University, China.

IV. Chau-Kai-Hsieh; Chiung Lin; Taiwan (1997), "Baby Cry

Page 102-108 © MANTECH PUBLICATIONS 2018. All Rights

Recognizer" US 5668780, Date of Patent September, 16

V. Gim Wong (1976), "Automatic baby crib rocker" US 3952343, Date of Patent: April, 27

VI. Sowmyasudhan S, Manjunath S, " A Wireless Based Real-time Patient Monitoring System", International Journal of Scientific & Engineering Research, Volume 2,Issue 11,November-2011

VII. Carsten Linti, Hansjurgen Horter, Peter Osterreicher, and Heinrich Planck, "Sensory baby vest for the monitoring of infant", International workshop on Wearable and Implantable Body Sensor Networks,BSN 2006 2006,3-5 April 2006

VIII. Baker Mohammad, Hazem Elgabra, Reem Ashour, and Hani Saleh, "Portable Wireless Biomedical Temperature Monitoring System", IEEE international conference publication on innovation in information technology(IIT), 19 March 2013

IX. Jia-Ren Chang Chien, "Design of a Home Care Instrument Based on Embedded System", IEEE international conference on industrial technology(ICIT), 24 April 2008

X. Ashruf A Tahat, "Body Temperature and Electrocardiogram Monitoring Using SMS-Based Telemedicine System" IEEE international conference on Wireless pervasive computing(ISWWPC), 13 Feb 2009

Page 102-108 © MANTECH PUBLICATIONS 2018. All Rights